

Hepatitis C reinfection following treatment induced viral clearance among people who have injected drugs

Weir, Amanda; McLeod, Allan; Innes, Hamish; Valerio, Heather; Aspinall, Esther; Goldberg, David; Barclay, Stephen; Dillon, John; Fox, Ray; Fraser, Andrew; Hayes, Peter; Kennedy, Nicholas; Mills, Peter; Stanley, Adrian; Aitken, Celia; Gunson, Rory; Templeton, Kate; Hunt, Alison; McIntyre, Paul; Hutchinson, Sharon

Published in:
Drug and Alcohol Dependence

DOI:
[10.1016/j.drugalcdep.2016.05.012](https://doi.org/10.1016/j.drugalcdep.2016.05.012)

Publication date:
2016

[Link to publication in ResearchOnline](#)

Citation for published version (Harvard):

Weir, A, McLeod, A, Innes, H, Valerio, H, Aspinall, E, Goldberg, D, Barclay, S, Dillon, J, Fox, R, Fraser, A, Hayes, P, Kennedy, N, Mills, P, Stanley, A, Aitken, C, Gunson, R, Templeton, K, Hunt, A, McIntyre, P & Hutchinson, S 2016, 'Hepatitis C reinfection following treatment induced viral clearance among people who have injected drugs', *Drug and Alcohol Dependence*, vol. 165, pp. 53–60.
<https://doi.org/10.1016/j.drugalcdep.2016.05.012>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

If you believe that this document breaches copyright please view our takedown policy at <https://edshare.gcu.ac.uk/id/eprint/5179> for details of how to contact us.

Table 1. Relative risk of receiving at least one HCV RNA test among PWID during study follow-up, where time at risk begins one year after completion of therapy and ends at earliest date of first RNA test, date of death or 31st December 2012.

Factor	Level	PWID (%)	Person Years	No. of people who received ≥ 1 RNA test during follow-up	Total no. of RNA tests	Estimated % tested by 3 years (95% CI)	Univariate HR (95%CI)	p	Adjusted HR (95%CI)	p
Overall		448	910	277	413	59.9 (55.2-64.6)				
Gender	Female	105 (23.5)	210	66	82	64.3 (54.7-73.9)	1.00 (Baseline)	0.897	1.00 (Baseline)	0.511
	Male	343 (76.5)	700	211	331	58.6 (53.3-64.0)	0.98 (0.74-1.29)		0.90 (0.65-1.24)	
Age*	<35	139 (31.0)	248	94	146	65.9 (57.7-74.0)	1.00 (Baseline)	0.149	1.00 (Baseline)	0.055
	≥ 35	309 (69.0)	662	183	267	57.3 (41.7-63.0)	0.83 (0.65-1.07)		0.75 (0.56-1.01)	
Cirrhotic*	No	416 (92.9)	877	251	359	58.4 (53.6-63.3)	1.00 (Baseline)	0.002	1.00 (Baseline)	0.012
	Yes	32 (7.1)	33	26	54	81.3 (63.3-93.9)	1.90 (1.27-2.85)		1.86 (1.15-3.00)	
Year initiated onto therapy	2000-2002	37 (8.3)	80	31	77	83.8 (70.4-93.4)	1.00 (Baseline)	0.028	1.00 (Baseline)	0.069
	2003-2005	114 (25.4)	356	75	115	54.4 (45.6-63.7)	0.62 (0.41-0.95)		0.67 (0.43-1.03)	
	2006-2009	297 (66.3)	474	171	221	58.9 (53.1-64.8)	0.66 (0.45-0.97)		0.50 (0.33-0.76)	
Treatment experienced	No	426 (95.1)	883	260	378	59.0 (54.3-63.9)	1.00 (Baseline)	0.043	1.00 (Baseline)	0.135
	Yes	22 (4.9)	27	17	35	76.7 (56.5-92.1)	1.66 (1.02-2.71)		1.53 (0.87-2.68)	
Opiate or Injection related hospital admission prior to being initiated onto therapy	No	300 (67.0)	664	178	252	56.8 (51.1-62.6)	1.00 (Baseline)	0.030	1.00 (Baseline)	0.097
	Yes	148 (33.0)	246	99	161	66.0 (58.1-73.7)	1.31 (1.03-1.68)		1.28 (0.96-1.71)	
Opiate or Injection related hospital admission during follow-up	No	403 (90.0)	803	248	344	59.4 (54.5-64.3)	1.00 (Baseline)	0.571	1.00 (Baseline)	0.422
	Yes	45 (10.0)	107	29	69	63.9 (49.6-77.9)	0.89 (0.61-1.31)		0.84 (0.54-1.29)	

*At start of Rx. PWID=People who inject drugs, RNA=Ribonucleic acid, CI=confidence interval, HR=Hazard Ratio.

Table 2. Detection of HCV reinfection among PWID who have received at least one RNA test during study follow-up, where time at risk begins one year after completion of therapy and ends at earliest date of reinfection (midpoint between last negative RNA test and first positive RNA test), last negative RNA test (for PWID who are not reinfected) or date of death.

Factor	Level	PWID (col %)	Person Years	No. of reinfections (col %)	Reinfection rate/100 PY (95%CI)	Univariate HR (95% CI)	p	AHR (95% CI)	p
Overall		277	410	7	1.71 (0.69-3.52)				
Gender	Female	66 (23.8)	68	2 (28.6)	2.94 (0.36-10.62)	1.00 (Baseline)		1.00 (Baseline)	
	Male	211 (76.2)	342	5 (71.4)	1.46 (0.47-3.41)	0.66 (0.13-3.42)	0.619	0.78 (0.13-4.59)	0.783
Age*	<35	94 (33.9)	155	2 (28.6)	1.29 (0.16-4.66)	1.00 (Baseline)		1.00 (Baseline)	
	≥35	183 (66.1)	255	5 (71.4)	1.96 (0.64-4.58)	1.40 (0.27-7.24)	0.686	1.92 (0.32-11.42)	0.471
Cirrhotic*	No	251 (90.6)	348	7 (100.0)	2.01 (0.81-4.14)				
	Yes	26 (9.4)	62	0 (0)	0				
Year initiated onto therapy	2000-2002	31 (11.2)	103	1 (14.3)	0.97 (0.02-5.41)	1.00 (Baseline)		1.00 (Baseline)	
	2003-2005	75 (27.1)	153	2 (28.6)	1.31 (1.58-4.72)	1.08 (0.10-11.91)	0.952	1.33 (0.11-15.80)	0.823
	2006-2009	171 (61.7)	154	4 (57.1)	2.60 (0.71-6.65)	1.38 (0.15-12.73)	0.774	1.61 (0.16-16.57)	0.687
Treatment experienced	No	260 (93.9)	375	6 (85.7)	1.60 (0.59-3.48)	1.00 (Baseline)		1.00 (Baseline)	
	Yes	17 (6.1)	35	1 (14.3)	2.86 (0.07-15.92)	1.99 (0.24-16.57)	0.524	2.77 (0.28-27.87)	0.387
Opiate or Injection related hospital admission prior to being initiated onto therapy	No	178 (64.3)	261	2 (28.6)	0.77 (0.09-2.77)	1.00 (Baseline)		1.00 (Baseline)	
	Yes	99 (35.7)	149	5 (71.4)	3.36 (1.09-7.83)	4.68 (0.91-24.14)	0.065	2.44 (0.41-14.37)	0.326
Opiate or Injection related hospital admission during follow-up	No	248 (89.8)	322	2 (28.6)	0.62 (0.08-2.24)	1.00 (Baseline)		1.00 (Baseline)	
	Yes	29 (10.5)	88	5 (71.4)	5.68 (1.84-13.26)	14.02 (2.69-73.21)	0.002	12.89 (2.18-76.04)	0.005

*At start of therapy. PWID=People who inject drugs, RNA=Ribonucleic acid, CI=confidence interval, Ref=Reference category.